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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/781,371	02/17/2004	Chee Siong Lee	42P18828	2794

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BLAKELY SOKOLOFF TAYLOR & ZAFMAN
12400 WILSHIRE BOULEVARD
SEVENTH FLOOR
LOS ANGELES, CA 90025-1030

EXAMINER	
UNELUS, ERNEST	

ART UNIT	PAPER NUMBER
2181	

DATE MAILED: 08/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/781,371	LEE ET AL.	
	Examiner	Art Unit	
	Ernest Unelus	2181	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 February 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02/17/04* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

RESPONSE TO AMENDMENT

Base on the amended claims, the examiner redraw the current double patenting rejection.

Applicant's arguments filed 07/24/2006 have been fully considered but they are not persuasive.

The applicant amended claim 1 by including request after "incoming" and before "cycle", from an upstream device, after "cycle" and before "and", and to modify the captured incoming request cycle prior to transmission to a downstream destination device after "instructions" and before "wherein".

In regards to the term "request cycles". The applicant's specification discloses that the request cycle is "***generally***" two categories of cycles. The applicant's specification further stated **"i.e. *a write request cycle...*".** As stated in the applicant's specification, the request cycles is not only limited to the two categories. The examiner also points out that the two categories are not claimed.

In regards to the term "from an upstream device", the upstream device can be anything. If someone would look at the incoming data in bus 24 from the patching circuitry's perspective, the data in bus 24 is coming down from the DSP 16 to the patching circuitry 22 below. With that in mind, the DPS 16 is the upstream device.

In regards to "to modify the captured incoming request cycle prior to transmission to a downstream destination device", Bernasconi discloses "**and at that point, a branch to corrected DSP program software in section 20b is performed". See col. 6, lines 46-47. Col. 6, lines 27-33 also discloses "After the corrected DSP program software from section 20b is**

delivered to the DSP 16 over bus 28, the patching circuitry 22, and bus 30, a program op code causes a jump back from the end of the block of corrected DSP program software in section 20b of the RAM 20 to the remainder of good DSP program software in section 18c of the ROM 18". Similarly of having an upstream device to transmit the incoming request, the DSP 16 is also a downstream device to receive the modify request (see fig. 1)

I. INFORMATION CONCERNING OATH/DECLARATION

Oath/Declaration

1. The applicant's oath/declaration has been reviewed by the examiner and is found to conform to the requirements prescribed in 37 C.F.R. 1.63.

II. INFORMATION CONCERNING DRAWINGS

Drawings

2. The applicant's drawings submitted are acceptable for examination purposes.

III. REJECTIONS BASED ON PRIOR ART

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., In re Berg, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); In re Goodman, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); In re Longi, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); In re

Van Ornum, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); In re Vogel, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and In re Thorington, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. **Claims 1 and 2** are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 16 of copending Application No. 10/781,512 in view Bernasconi et al. (US pat. 6,158,018).

4. Initially, it should be noted that the present application and Application No. 10/781,512, share one common inventor, which is Chee Lee. The assignee for both applications is INTEL CORPORATION. The examiner also notes that neither the instant application nor U.S application 10/781,512 were the subject of a restriction by the office.

5. Claimed subject matter in the instant application is fully disclosed in the referenced copending application and would be covered by any patent granted on that copending application since the referenced copending application and the instant application are claiming common subject matter, as noted below. *See In re Goodman, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993).*

6. Furthermore, there is no apparent reason why applicant would be prevented from presenting claims corresponding to those of the instant application in the other copending application. See MPEP § 804.

7. Claim 1 is compared to claims 16 of application 10/781,512 in the following table:

Instant Application	Application 10/781,512

(Currently Amended) A system comprising: a trigger-matching logic to capture an incoming request cycle from an upstream device and determine if the captured incoming request cycle matches one or more of trigger conditions; and a control logic coupled to the trigger-matching logic to select a set of instructions upon detection of at least one matched trigger condition and to execute operations as specified by the selected set of instructions to modify the captured incoming request cycle prior to transmission to a downstream destination device, wherein the set of instructions is selected based on the at least one matched trigger condition.	A patch module comprising: a trigger-matching logic to capture an incoming cycle and determine if the captured incoming cycle matches one or more of trigger conditions; and a control logic coupled to the trigger-matching logic to select a set of instructions upon detection of at least one matched trigger condition and to execute operations as specified by the selected set of instructions, wherein if the captured cycle that caused a trigger is a non-posted cycle, the control logic instructs a completion queue to load the completion queue with one of the following (1) unmodified header information from the captured non-posted cycle, (2) modified header information associated with modified non-posted cycle, or (3) header information associated with a new cycle generated in response the captured cycle, wherein the control logic instructs the completion queue whether or not to return a completion packet associated with the modified non-posted cycle to the requesting device.

In regards to "wherein the set of instructions is selected based on the at least one matched trigger condition" This part of the limitation is disclosing that the control logic will select a set of instruction upon detection of one matched trigger condition. This limitation has already been discloses as part of the claim; for example "a control logic coupled to the trigger-matching logic to select a set of instructions upon detection of at least one matched trigger condition.

This a provisional double patenting rejection since the conflicting claims have not yet been patented. The double patenting rejection is also applicable to other claim in the application; claim 2 of the instant application corresponds to claim 17 of Application 10/781,512.

Claim 16 from application number 10/781,512 didn't specifically discloses "to modify the captured incoming request cycle prior to transmission to a downstream destination device,"

Bernasconi teaches "to modify the captured incoming request cycle prior to transmission to a downstream destination device, **(See col. 6, lines 46-47, which discloses "and at that point, a branch to corrected DSP program software in section 20b is performed". Col. 6, lines 27-33 also discloses "After the corrected DSP program software from section 20b is delivered to the DSP 16 over bus 28, the patching circuitry 22, and bus 30, a program op code causes a jump back from the end of the block of corrected DSP program software in section 20b of the RAM 20 to the remainder of good DSP program software in section 18c of the ROM 18")**

Application number 10/781,512 and Bernasconi's invention are analogous art because they are from the same field of endeavor of a patching circuitry to bypass or fix a flaw.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to modify the patch module to process non-posted request cycles and to control completions returned to requesting device as taught by application number 10/781,512 and an improved IC device including patching circuitry to bypass flawed data stored in an embedded ROM and a method of operation therefore as taught by Bernasconi

The motivation for doing so would have been because Bernasconi teaches that **["Moreover, the invention here permits as many corrections to the DSP program software as there are flaws in the IC's ROM 18, and quite importantly, these corrections to the software can be implemented in a final production device 12 with internal flaws in its embedded ROM 18, thereby obviating the need to design and manufacture a new chip"(col. 9, lines 43-48)]**.

Therefore, it would have been obvious to combine Bernasconi and Application number 10/781,512 for the benefit of creating a patch mechanism used to detect and workaround defects and conditions existing in an integrated circuit chip to obtain the invention as specified in claim 1.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. **Claims 1-19, and 21-26** are rejected under 35 U.S.C. 102(b) as being anticipated by Bernasconi et al. (US pat. 6,158,018).

10. As per **claim 1**, Bernasconi discloses "a trigger-matching logic **(col. 9, lines 51-57, teaches that the trigger-matching logic is the logic that doest the matching between the current DSP program address and a break address correspond to a**

flawed DSP program stored in the ROM 18, such as at section 18b.) to capture an incoming request cycle from an upstream device **(DPS 16) (col. 9, line 54 teaches the current DSP program address corresponds to the applicant incoming request cycle)** and determine if the captured incoming cycle matches one or more of trigger conditions **(see col. 9, lines 51-57)**; and a control logic **(col. 9, lines 9, lines 57 to col. 10, line 5, teaches the that the control logic is taught by Bernasconi's patching circuitry 22, which carries out the steps of sending a branch op code to the DSP 16 followed by a branch address corresponding to the beginning of a block of corrected DSP program software in the RAM 20 such as in section 20b.)** coupled to the trigger-matching logic to select a set of instructions upon detection of at least one matched trigger condition and to execute operations as specified by the selected set of instructions to modify the captured incoming request cycle prior to transmission to a downstream destination device **(DSP 16), (See col. 6, lines 46-47, which discloses "and at that point, a branch to corrected DSP program software in section 20b is performed". Col. 6, lines 27-33 also discloses "After the corrected DSP program software from section 20b is delivered to the DSP 16 over bus 28, the patching circuitry 22, and bus 30, a program op code causes a jump back from the end of the block of corrected DSP program software in section 20b of the RAM 20 to the remainder of good DSP program software in section 18c of the ROM 18". Similarly of having an upstream device to transmit the incoming request, the DSP 16 is also a downstream device to receive the modify request (see fig. 1)**, wherein the set of instructions is selected based on the at least one matched trigger condition" **(see fig. 1 and col. 9, line 57 to col. 10, line 5)**.

11. As per **claim 2**, Bernasconi discloses "the system of claim 1,"**[see rejection to claim 1 above]** "wherein the trigger-matching logic and the control logic are incorporated within an Input/Output (I/O) chip **(with respect to this limitation, Bernasconi discloses the logic that doest the matching between the current DSP program address and a break address take place inside the patching circuitry 22 that is discloses in fig. 2. The patching circuitry 22 is shown in fig. 1 coupled to a control logic, incorporated within an Input/output (I/O) integrated circuit chip". (see fig. 1)**.

12. As per **claim 3**, Bernasconi discloses "wherein the control logic can execute an operation which involves logically combining a selected operand entry with a selected register containing information from the captured cycle **(see col. 3, lines 32-45, also, in fig. 3, Bernasconi also discloses the selected captured cycle's information is stored within a register that is now shown, as stated by Bernasconi in col. 8, lines 18-26).**

13. As per **claims 4, 10, and 22**, Bernasconi discloses wherein the control logic can execute an operation which causes a new cycle to be created and forwarded to a downstream bus of the I/O controller **(see col. 3, lines 47-64)**.

14. As per **claim 5**, Bernasconi discloses wherein the control logic can execute an operation which involves modifying the captured incoming cycle **(with respect to this limitation, Bernasconi discloses a method comprising the steps of**

supplying the corrected software to the embedded DSP after the step of providing a branch op code followed by a branch address to the embedded DSP, and supplying data to the embedded DSP from a portion of the embedded ROM located downstream of the flawed portion thereof after the step of supplying corrected software to the embedded DSP (see col. 3, lines 32-53). Therefore, the current DSP program address is corrected from old to new. When something is corrected, it also modified. Therefore, this limitation is inherently met).

15. As per **claims 6, 14, and 26**, Bernasconi discloses wherein the control logic can execute an operation which causes a timed delay or a conditional delay to be inserted **(in col. 13, lines 56-58, Bernasconi discloses a sequencer discloses in the path module, which is known in the art to "sorts data or programs into a predetermined sequence". Bernasconi discloses this sequencer to create a delay, as disclosed).**

16. As per **claims 7 and 21**, Bernasconi discloses, capturing an incoming request cycle **(input data 24, fig. 1)** from an upstream device **(DSP 16)**; loading information from the captured request cycle into a first register **(see fig. 3 and col. 7, lines 50-55)**; comparing the information stored in the first register with trigger conditions **(see fig. 3)**; selecting a sequence of instructions based on a matched trigger condition, and executing the selected instructions sequentially **(col. 9, line 57 to col. 10, line 5)** to modify the captured incoming request cycle prior to transmission to a downstream destination device **(DSP 16), (See col. 6, lines 46-47, which discloses "and at that point, a branch to corrected DSP program software in section**

20b is performed". Col. 6, lines 27-33 also discloses "After the corrected DSP program software from section 20b is delivered to the DSP 16 over bus 28, the patching circuitry 22, and bus 30, a program op code causes a jump back from the end of the block of corrected DSP program software in section 20b of the RAM 20 to the remainder of good DSP program software in section 18c of the ROM 18". Similarly of having an upstream device to transmit the incoming request, the DSP 16 is also a downstream device to receive the modify request (see fig. 1)

17. As per **claim 8**, Bernasconi discloses wherein the incoming cycle is received within an I/O controller chip **(see fig. 1 and col. 4, lines 44-48)**.

18. As per **claim 9,** Bernasconi discloses wherein executing of the instructions comprises: logically combining a selected operand entry with a selected register containing information captured from the received cycle **(see fig. 3, and col. 3, lines 29-32)**.

19. As per **claims 11-13 and 23-25**, Bernasconi discloses wherein executing the instructions comprises: modifying a cycle type section of the incoming cycle, an address section of the incoming cycle, and a data section of the incoming cycle **(with respect to this limitation, Bernasconi discloses a method comprising the steps of supplying the corrected software to the embedded DSP after the step of providing a branch op code followed by a branch address to the embedded DSP, and supplying data to the embedded DSP from a portion of the embedded ROM located downstream**

of the flawed portion thereof after the step of supplying corrected software to the embedded DSP (see col. 3, lines 32-53). Therefore, the current DSP program address is corrected from old to new. When something is corrected, it also modified. Therefore, this limitation is inherently met. Also, a cycle type section of the incoming cycle consist s an address section of the incoming cycle, which is a form of data).

20. As per **claim 15**, Bernasconi discloses a patch module comprising: a cycle capture unit **(the patching circuitry 22, fig. 1)** to capture request cycles forwarded by a processor **(16)**; a plurality of trigger registers **(18c)** to store trigger conditions; a trigger comparator **(element 42, a comparator inside the patching circuitry that is discloses in fig. 2)** coupled between the cycle capture unit **(the patching circuitry 22, fig. 1)** and the trigger registers to determine if information associated with the captured request cycle matches trigger conditions stored in the trigger registers **(see col. 9, lines 51-57)**; an instruction storage to store instructions **(20b)**; an instruction select unit to select a set of instructions from the instruction storage based on one or more of matched trigger conditions **(see col. 9, line 57 to col. 10, line 5)**; an instruction execution unit to execute the set of instructions selected by the instruction select unit **(see col. 9, line 57 to col. 10, line 5)** to modify the captured incoming request cycle prior to transmission to a downstream destination device **(DSP 16), (See col. 6, lines 46-47, which discloses "and at that point, a branch to corrected DSP program software in section 20b is performed". Col. 6, lines 27-33 also discloses "After the corrected DSP program software from section 20b is delivered to the DSP 16 over bus 28, the patching circuitry 22, and bus**

30, a program op code causes a jump back from the end of the block of corrected DSP program software in section 20b of the RAM 20 to the remainder of good DSP program software in section 18c of the ROM 18". Similarly of having an upstream device to transmit the incoming request, the DSP 16 is also a downstream device to receive the modify request (see fig. 1)

21. As per **claim 16**, Bernasconi discloses wherein the patch module **(the patching circuitry 22, fig. 1)** is embedded within an I/O controller chip **(see fig. 1 and col. 4, lines 44-48)** and can be programmed by a user to workaround conditions and defects existing in the I/O controller chip **(see col. 10, lines 55-60)**.

22. As per **claim 17,** Bernasconi discloses wherein the instruction execution unit can execute an instruction that comprises: a first field to specify a type of operation to be performed **(col. 2, line 63 to col. 3 line 17)**, wherein the type of operations identified by the first field includes (1) timed delay operation, (2) conditional delay operation, (3) generating new cycle operation, and (4) modifying the capture request cycle operation **(see col. 2, line 63 to col. 3 line 17)**; and a second field to specify whether or not a cycle generated by the instruction is to be forwarded to downstream bus **(see col. 3 lines 32-54)**.

23. As per **claim 18,** Bernasconi discloses a third field to select a register to modify **(col. 12, lines 43-47)**; a fourth field to select an operand entry from an operand array **(col. 12, lines 44-55)**; and a fifth field to select a logic gate for combining the

selected register with the selected operand entry **(col. 12, lines 47-64).**

24. As per **claim 19,** Bernasconi discloses wherein the captured incoming cycle is a non-posted cycle **(see request 24 in fig. 1, which is an incoming request that has not been process or complete. The applicant discloses that "non-posted cycle" is request that require completion).**

IV. RELEVANT ART CITED BY THE EXAMINER

25. The following prior art made of record and not relied upon is cited to establish the level of skill in the applicant's art and those arts considered reasonably pertinent to applicant's disclosure. See MPEP 707.05(c).

26. The following references teach a computer system used to detect, transfer data, workaround defects and conditions existing in an integrated circuit chip.

U.S. PATENT NUMBER

US 2004/0237009
US 6,463,549
US 6,314,024

VII. CLOSING COMMENTS

Conclusion

a. STATUS OF CLAIMS IN THE APPLICATION

27. The following is a summary of the treatment and status of all claims in the application as recommended by **M.P.E.P. 707.07(i)**:

a(1) SUBJECT MATTER CONSIDERED ALLOWABLE

28. Per the instant office action, claim 20 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The primary reasons for allowance of claim 20 in the instant application is the "wherein **the instruction execution unit can execute an instruction that comprises; a fifth field to specify whether a completion queue is to be loaded with unmodified header information from the captured non-posted cycle or loaded with modified header information associated with modified request cycle that is generated by the control logic; and a sixth field to specify whether or not a completion associated with the capture request cycle is to be discarded**". The prior art of record including the disclosures under section **VII** above neither anticipates nor renders obvious the above recited combination.

a(1) CLAIMS REJECTED IN THE APPLICATION

29. Per the instant office action, claims 1-26 have received a final action on the merits.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

b. DIRECTION OF FUTURE CORRESPONDENCES

30. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ernest Unelus whose telephone number is (571) 272-8596. The examiner can normally be reached on Monday to Friday 9:00 AM to 5:00 PM.

IMPORTANT NOTE

31. If attempts to reach the above noted Examiner by telephone is unsuccessful, the Examiner's supervisor, Mr. Fritz M. Fleming, can be reached at the following telephone number: Area Code (571) 272-4145.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

August 23, 2006

Ernest Unelus
Examiner
Art Unit 2181

KIM HUYNH
SUPERVISORY PATENT EXAMINER

8/29/06